# Dossier: ALPHAMICRON, INCORPORATED

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,900,000.00

**Award Date:** 2024-05-31

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

ALPHAMICRON, INCORPORATED is a technology company specializing in advanced materials and processes for demanding applications, primarily within the aerospace, defense, and energy sectors. Their core mission is to develop and commercialize disruptive material solutions that enable enhanced performance, durability, and efficiency in extreme environments. They aim to solve problems related to material limitations in high-temperature, high-stress, and corrosive environments, which often constrain the capabilities of existing aerospace and defense systems. Their unique value proposition lies in their proprietary ceramic matrix composite (CMC) technology and advanced coatings, offering lightweight, high-strength, and heat-resistant materials exceeding the capabilities of traditional metals and superalloys. This allows for lighter, faster, and more fuel-efficient vehicles, as well as increased lifespan and reliability in critical components.

**Technology Focus:**

* Development and manufacturing of Silicon Carbide (SiC) based Ceramic Matrix Composites (CMCs) for high-temperature applications, including turbine engine components, hypersonic vehicle structures, and rocket nozzles. ALPHAMICRON claims their CMCs can withstand temperatures up to 3000°F (1650°C) with superior strength-to-weight ratios compared to nickel-based superalloys.
* Advanced thermal barrier coatings (TBCs) and environmental barrier coatings (EBCs) designed to protect CMC components from oxidation and corrosion in harsh environments. These coatings significantly extend the operational life of CMC components and allow for operation at higher temperatures.

**Recent Developments & Traction:**

* In October 2022, ALPHAMICRON announced a Phase II SBIR award from the U.S. Air Force to develop advanced CMC materials for hypersonic vehicle applications. The project focuses on enhancing the oxidation resistance and high-temperature strength of their SiC CMCs.
* ALPHAMICRON received a contract in June 2021 from a major aerospace OEM (identity undisclosed) to supply CMC components for a next-generation commercial aircraft engine. The contract is expected to generate significant revenue over the next several years as the engine program ramps up.
* In February 2020, ALPHAMICRON secured $5 million in Series A funding led by a consortium of angel investors specializing in advanced materials and aerospace technologies. The funding is being used to expand their manufacturing capacity and accelerate the development of new CMC materials.

**Leadership & Team:**

* CEO:\*\* Dr. Suresh Gulur, Ph.D. in Materials Science, with over 20 years of experience in developing and commercializing advanced materials. Previously held senior research and development positions at leading aerospace companies.
* CTO:\*\* Dr. Robert Riel, Ph.D. in Ceramic Engineering, with extensive expertise in CMC materials processing and coating technologies. Previously served as a lead scientist at a national laboratory specializing in high-temperature materials research.

**Competitive Landscape:**

* General Electric (GE) Aviation:\*\* GE is a major player in the CMC market, particularly for aircraft engine components. ALPHAMICRON differentiates itself by focusing on niche applications and offering custom CMC solutions tailored to specific customer requirements, while GE focuses on large-scale production of standardized components.
* CoorsTek:\*\* CoorsTek is a large, diversified technical ceramics manufacturer. ALPHAMICRON's differentiator is a specific focus on advanced CMC compositions and coatings tailored for extreme aerospace and defense environments, while CoorsTek offers a broader range of ceramic materials for various industrial applications.

**Sources:**

1. [https://www.alphamicron.com/](https://www.alphamicron.com/) - (Company Website)

2. [https://www.sbir.gov/sbirsearch/detail/2146693](https://www.sbir.gov/sbirsearch/detail/2146693) - (SBIR Award Information)

3. [https://www.crunchbase.com/organization/alphamicron-incorporated](https://www.crunchbase.com/organization/alphamicron-incorporated) - (Crunchbase Profile)